

AMENDMENTS TO THE CLAIMS

1. (currently amended) An automatic gain control for a cabin communication system for improving clarity of a voice spoken within a movable interior cabin having ambient noise, the ambient noise intermittently including an undesirable transient noise, said automatic gain control comprising:

 a microphone for receiving the spoken voice and the ambient noise and for converting the spoken voice and the ambient noise into a first audio signal, the first audio signal including a first component corresponding to the spoken voice and a second component corresponding to the ambient noise;

 a parameter estimation processor for receiving the first audio signal and for determining parameters for deciding whether or not the second component corresponds to an undesirable transient noise;

 decision logic for deciding, based on the parameters, whether or not the second component corresponds to an undesirable transient signal;

 a filter for filtering the first audio signal to provide a filtered audio signal;

 a loudspeaker for outputting a reproduced voice in response to the filtered audio signal with a variable gain at a second location in the cabin; and

 a control signal generating circuit for generating an automatic gain control signal in response to said decision logic,

 wherein when said decision logic decides that the second component corresponds to an undesirable transient signal, said control signal generating circuit generates the automatic gain control signal so as to gracefully set the gain of said loudspeaker to zero for fade-out of the reproduced voice.

2. (original) The automatic gain control of claim 1, wherein the parameters include at least one parameter establishing a threshold.

3. (original) The automatic gain control of claim 2, wherein the first audio signal is a sampled audio signal and wherein said parameter estimation processor

determines the at least one parameter establishing the threshold based upon a single sample of the first audio signal.

4. (original) The automatic gain control of claim 2, wherein the first audio signal is a sampled audio signal and wherein said parameter estimation processor determines the at least one parameter establishing the threshold based upon a plurality of samples of the first audio signal.

5. (original) The automatic gain control of claim 1, wherein the parameters include at least one parameter establishing a template.

6. (original) The automatic gain control of claim 5, wherein the first audio signal is a sampled audio signal and wherein said parameter estimation processor determines the at least one parameter establishing the template based upon a single sample of the first audio signal.

7. (original) The automatic gain control of claim 5, wherein the first audio signal is a sampled audio signal and wherein said parameter estimation processor determines the at least one parameter establishing the template based upon a plurality of samples of the first audio signal.

8. (original) The automatic gain control of claim 1, wherein said parameter estimation processor updates the parameters a selected one of continuously, at set time intervals, in response to set conditions and in response to variable conditions..

9. (currently amended) The automatic gain control of claim 1, wherein after the automatic gain control signal has set the gain to zero, said control signal generating circuit generates the automatic gain control signal after a predetermined time interval so as to gracefully increase the gain of said loudspeaker from zero for fade-in of the reproduced voice.

10. (original) The automatic gain control of claim 9, wherein the predetermined time interval corresponds to a ring-down time of the cabin.

11. (currently amended) An automatic gain control for a cabin communication system for improving clarity of a voice spoken within a movable interior cabin having ambient noise, the ambient noise intermittently including an undesirable transient noise, said automatic gain control comprising:

a microphone for receiving the spoken voice and the ambient noise and for converting the spoken voice and the ambient noise into a first audio signal;

a filter for filtering the first audio signal to provide a filtered audio signal, the filtered audio signal including a first component corresponding to the spoken voice and a second component corresponding to the ambient noise;

a parameter estimation processor for receiving the filtered audio signal and for determining parameters for deciding whether or not the second component corresponds to an undesirable transient noise;

decision logic for deciding, based on the parameters, whether or not the second component corresponds to an undesirable transient signal;

a loudspeaker for outputting a reproduced voice in response to the filtered audio signal with a variable gain at a second location in the cabin; and

a control signal generating circuit for generating an automatic gain control signal in response to said decision logic,

wherein when said decision logic decides that the second component corresponds to an undesirable transient signal, said control signal generating circuit generates the automatic gain control signal so as to gracefully set the gain of said loudspeaker to zero for fade-out of the reproduced voice.

12. (original) The automatic gain control of claim 11, wherein the parameters include at least one parameter establishing a threshold.

13. (original) The automatic gain control of claim 12, wherein the filtered audio signal is a sampled audio signal and wherein said parameter estimation processor determines the at least one parameter establishing the threshold based upon a single sample of the filtered audio signal.

14. (original) The automatic gain control of claim 12, wherein the filtered audio signal is a sampled audio signal and wherein said parameter estimation processor determines the at least one parameter establishing the threshold based upon a plurality of samples of the filtered audio signal.

15. (original) The automatic gain control of claim 11, wherein the parameters include at least one parameter establishing a template.

16. (original) The automatic gain control of claim 15, wherein the filtered audio signal is a sampled audio signal and wherein said parameter estimation processor determines the at least one parameter establishing the template based upon a single sample of the filtered audio signal.

17. (original) The automatic gain control of claim 15, wherein the filtered audio signal is a sampled audio signal and wherein said parameter estimation processor determines the at least one parameter establishing the template based upon a plurality of samples of the filtered audio signal.

18. (original) The automatic gain control of claim 11, wherein said parameter estimation processor updates the parameters a selected one of continuously, at set time intervals, in response to set conditions and in response to variable conditions.

19. (currently amended) The automatic gain control of claim 11, wherein after the automatic gain control signal has set the gain to zero, said control signal

generating circuit generates the automatic gain control signal after a predetermined time interval so as to gracefully increase the gain of said loudspeaker from zero for fade-in of the reproduced voice.

20. (original) The automatic gain control of claim 19, wherein the predetermined time interval corresponds to a ring-down time of the cabin.

21. (currently amended) An automatic gain control method for use in a cabin communication system for improving clarity of a voice spoken within a movable interior cabin having ambient noise, the ambient noise intermittently including an undesirable transient noise, said method comprising the steps of:

receiving the spoken voice and the ambient noise at a first location in the cabin and for converting the spoken voice and the ambient noise into a first audio signal, the first audio signal including a first component corresponding to the spoken voice and a second component corresponding to the ambient noise;

determining, in response to the first audio signal, parameters for deciding whether or not the second component corresponds to an undesirable transient noise;

deciding, based on the parameters, whether or not the second component corresponds to an undesirable transient signal;

filtering the first audio signal to provide a filtered audio signal;

outputting a reproduced voice in response to the filtered audio signal with a variable gain at a second location in the cabin; and

generating an automatic gain control signal in response to said deciding step,

wherein when said deciding step decides that the second component corresponds to an undesirable transient signal, said generating step generates the automatic gain control signal so as to gracefully set the gain of said outputting step to zero for fade-out of the reproduced voice.

22. (currently amended) An automatic gain control method for use in a

cabin communication system for improving clarity of a voice spoken within a movable interior cabin having ambient noise, the ambient noise intermittently including an undesirable transient noise, said method comprising the steps of:

receiving the spoken voice and the ambient noise at a first location in the cabin and for converting the spoken voice and the ambient noise into a first audio signal;

filtering the first audio signal to provide a filtered audio signal, the filtered audio signal including a first component corresponding to the spoken voice and a second component corresponding to the ambient noise;

determining parameters for deciding whether or not the second component corresponds to an undesirable transient noise;

deciding, based on the parameters, whether or not the second component corresponds to an undesirable transient signal;

outputting a reproduced voice in response to the filtered audio signal with a variable gain at a second location in the cabin; and

generating an automatic gain control signal in response to said deciding step,

wherein when said deciding step decides that the second component corresponds to an undesirable transient signal, said generating step generates the automatic gain control signal so as to gracefully set the gain of said outputting step to zero for fade-out of the reproduced voice.